Claim 7, lines 4 and 7, in each instance delete "and unbroken."

10. (Amended) A bonded wafer integrated circuit comprising:

(a) a handle die comprising a first dielectric layer, said first dielectric layer comprising a first bonding material;

(b) a [homogeneous] silicide layer bonded by said first bonding material to said [handle die] first dielectric layer;

(c) a device [layer] wafer comprising a device layer and a second dielectric layer comprising [a] a second bonding material, said second dielectric layer being bonded to said silicide layer and said device layer by said second bonding material; and

(d) interconnected transistors in and at a surface of said device layer;

wherein said silicide layer comprises a third bonding material that [differs from material in the portion of said handle die adjacent said silicide layer and which also differs from material in the portion of said device layer adjacent said silicide layer] bonds said silicide layer to said handle die and said device wafer.

Claim 11, line 2; claim 14, line 1; claim 15, line 2; claim 18, line 1; in each instance, delete "homogeneous."

Cancel claim 12.

13. (Amended) The integrated circuit of claim 10 wherein said handle die is silicon and [includes a] said first dielectric layer is silicon dioxide portion adjacent said homogeneous silicide layer].

17. (Amended) The integrated circuit of claim 16 wherein said [device] first dielectric layer [includes] is a diamond layer [adjacent to said homogeneous silicide layer], said trenches extending to but not through said diamond layer.

Add the following new claims:

19. (New) The integrated circuit of claim 10 wherein said first and second bonding materials each comprises a thin layer of polysilicon, said polysilicon being substantially consumed during bonding.

20. (New) The integrated circuit of claim 19 wherein said first bonding material further comprises an aqueous oxidizing solution.

21. (New) The integrated circuit of claim 20 wherein said aqueous oxidizing solution comprises nitric acid and hydrogen peroxide.

22. (New) The integrated circuit of claim 10 wherein said third bonding material is a silicide of a metal selected from the group consisting of [cobalt, platinum, tungsten, and titanium].

Remarks

The instant application, filed May 21, 1999, has been objected to on the grounds that it introduces new matter in the disclosure, it being asserted that the added material is not supported by the disclosure of the original parent application. Relatedly, claims 1-18 have been rejected under 35 U.S.C. §112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In light of the above amendments and the remarks to follow, the objection and rejection are respectfully traversed. The remarks in §1 of the Office Action will be responded to in turn.

In response to the assertion that the original specification never discloses substantially continuous and unbroken silicide and first dielectric layers, as claimed in claim 1, and further that the original specification does not disclose a substantially continuous and unbroken second dielectric layer, as claimed in claim 7, the specification is amended at pages 3, 4, and 7 to delete the phrase "and unbroken." Claims 1 and 7 are similarly amended. The applicants continue to maintain that, based on their described mode of formation and the accompanying figures in the original specification, these layers are "substantially continuous." Referring to page 3, line 3 to page 4, line 22 and corresponding FIGS. 3a-f, it is clear that silicide layer 315 and first dielectric oxide layer 316 are continuous layers. Similarly, the specification at page 7, line 19 to page 8, line 20 describes, and corresponding FIGS. 4a-b depict the formation of continuous silicide layer 415, continuous first dielectric oxide layer 413, and continuous second dielectric oxide layer 406. As shown in FIG. 4c, trench formation cuts through silicide layer 413 and second dielectric layer 406, but they remain continuous under each of the resulting islands.